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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/982,110	10/17/2001	Robert L. Gerlach	F077	9322

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MICHAEL O. SCHEINBERG
P.O. BOX 164140
AUSTIN, TX 78716-4140

EXAMINER

EL SHAMMAA, MARY A

ART UNIT	PAPER NUMBER
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2881

DATE MAILED: 01/30/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/982,110

Applicant(s)

GERLACH ET AL.

Examiner

Mary A. El-Shammaa

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-31 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 6, 10-13, 18-24 and 26 is/are rejected.
- 7) ☒ Claim(s) 5, 7-9, 14-17, 25 and 27-31 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 October 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). ____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 5. 6) ☐ Other:

DETAILED ACTION

Information Disclosure Statement

The information disclosure statement filed 10-17-2001 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each U.S. and foreign patent; each publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. It has been placed in the application file.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-4, 6, 12, 13, 18-21, and 22 are rejected under 35 U.S.C. 102(b) as being anticipated by Smick et al. (6,331,713).

Regarding claims 1-4, 6, 12, 13, 18-21, and 22, Smick et al. discloses an FIB column assembly comprising beam apertures and one or more dielectric bushings, said bushing positioning and isolating one or more components of the ion gun within a vacuum (Col. 4, Lines 45-61, Col. 5, Lines 6-9, 19-55). The FIB column includes an O-ring seal to vacuum seal the wires of the ion source assembly (Col. 6, Lines 1-4). Smick et al. further discloses an ion gun dielectric bushing, a prealigned emitter assembly capable of being inserted as a unit into the

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optical column, said emitter assembly supported by a dielectric housing (Col. 5, Lines 55-65, Col. 6, Lines 1-20, 33-35).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 10 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Smick et al. in view of Fujii et al. (6,300,628).

Regarding claims 10 and 11 Smick et al. discloses an FIB column, however, this FIB column does not contain an in-vacuum aperture changing mechanism. Fujii et al. discloses an FIB column that comprises an in-vacuum aperture changing mechanism with one or more piezoelectric actuators, DC motors, or stepper motors (Col.2, Lines 56-67, Col. 3, Lines 1-9). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the FIB column of Smick et al. with the teachings of an in-vacuum aperture changing mechanism as taught by Fujii et al. because the addition of this mechanism reduces the necessity of accessing the interior of the vacuum chamber.

Claims 23 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Smick et al. in view of Koyama (6,348,689).

Regarding claims 23 and 26, Smick et al. discloses an FIB column with dielectric bushing, however, the housing is not configured to support multiple gun elements. Koyama

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discloses an FIB column that is constructed to support multiple gun elements within a vacuum as well as aligning and connecting the optical elements (Col. 2, Lines 11-19, 27-31, 48-51). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the FIB column of Smick et al. with the teachings of Koyama of a housing that can support multiple gun elements because additional guns can provide many functions such as neutralizing the sample.

Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Smick et al in view of Koyama et al. (6,365,905).

Regarding claim 24, Smick et al. does not disclose a vacuum pump for evacuating the vacuum chamber. Koyama et al. discloses a vacuum pump for evacuating the chamber (Col. 2, Lines 18-22). Vacuum pumps are well known in the art and it would have been obvious to include one for the purpose of evacuating the chamber disclosed by Smick et al.

Allowable Subject Matter

Claims 5, 7-9, 14-17, 25, and 27-31 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. No prior art was found disclosing an in-vacuum isolation valve mechanism, nor was a dielectric housing surrounded by a metallic shield found.

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Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. (6,032,513), (5,844,416), (6,107,626), (6,268,608), (6,407,001).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mary A. El-Shammaa whose telephone number is 703.308.0851. The examiner can normally be reached on M-F(8:30am-5:00pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John R. Lee can be reached on 703.308.4116. The fax phone numbers for the organization where this application or proceeding is assigned are 703.872.9318 for regular communications and 703.872.9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703.872.9317.

mae
January 21, 2003


JOHN R. LEE
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800